General Correspondence:

Reverse chronological order, *excluding:*

- Objection
- Hearing
- Extension/Revocation
- Verification

General Correspondence

Lewis & Clark
Public Health

316 North Park Ave., Room 230, Helena, MT 59623
Phone: 406-447-8351 / Fax: 406-447-8398
Email: publichealth@lccountymt.gov
Website: www.LewisAndClarkHealth.org

September 14, 2015

Bryan Gartland
Deputy Regional Manager
Dept. of Natural Resources and Conservation
PO Box 201601
Helena, MT 59620-1601

RECEIVED
SEP 1 4 2015
DNRC-HRO

RE: Comments on Draft Rule: East Valley Controlled Groundwater Area

Dear Mr. Gartland:

The Lewis and Clark Board of Health and the Lewis and Clark County Water Quality Protection District (petitioners) have reviewed the draft rules you provided on August 28, 2015. We have the following comments:

General Comment: The rule requires applications and forms be accompanied by approvals from five agencies; presumably this is what the petitioners refer to as the TAG (Technical Assistance Group). If the public reads the rules and believes they have to go to five agencies and get individual approvals they may rightfully suggest that the process is too bureaucratic. Can the rule be amended to reflect the intention of having a TAG issue one approval, rather five separate approvals?

1. Page 1, (1): The CGWA area should be about 1920 acres or three square miles, not 1366 or two square miles as written. See Table 4-1 in Support Document. The 1920 includes all of Subarea 1 and Subarea two.
2. Page 1, (1)(a): The draft rules says nothing about the Zone 1 vertical boundaries; see Section 4.2 of the Support Document. Is the intent of the rule to exclude all drilling, including deep drilling?
3. Page 2, (2): The website provided does not work so we cannot provide comment on it.
4. Page 2, (3)(a): The draft cites section 3(c), but there is no section 3(c).
5. Page 3, REASONABLE NECESSITY: The draft states that the City of East Helena has an established moratorium on new wells under City Code 8-3-7. However, the East Helena City Attorney has stated that the City does not have a moratorium on wells within the METG annexed property, only within the Water Service Area. The Water Service Area is currently defined as the old City of East Helena city limits.

Thank you for the opportunity to provide comment. If you have any questions please contact me at 406-457-8585 or email at jswierc@lccountymt.gov; or contact Kathy Moore at 406-457-8926 or email kmoore@lccountymt.gov.

Sincerely,

James Swierc
Lewis & Clark Water Quality Protection District Hydrogeologist

Cc Board of Health
Water Quality Protection District Board
Kathy Moore, Environmental Division Administrator
Melanie Reynolds, Health Officer

Gartland, Bryan

From: James Swierc <JSwierc@lccountymt.gov>
Sent: Monday, September 14, 2015 2:58 PM
To: Gartland, Bryan
Cc: Kathy Moore; Melanie Reynolds
Subject: EVCGWA
Attachments: LCCounty-EVCGWA Responses 14Sept2015.pdf

Hi Bryan

Attached is our comment letter on the proposed rules for the East Valley Controlled Ground Water Area.
A hard copy will follow in todays mail.

Please let me know if you have any questions about our comments.

Regards,
James

James Swierc, PG
Hydrogeologist
Lewis & Clark County
Water Quality Protection District
406-457-8585
jswierc@lccountymt.gov

DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION
HELENA WATER RESOURCES REGIONAL OFFICE

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HELENA, MT 59620-1601

August 28, 2015

Kathy Moore
Lewis and Clark City-County Health Department
316 North Park Avenue
Helena, MT 59623

Subject: Petition for (Temporary) Controlled Groundwater Area No. 30070516 411 (East Valley), by Lewis and Clark City-County Health Department

Dear Petitioner:

The Department of Natural Resources and Conservation (Department) has carefully reviewed the proposal for a Temporary East Valley Controlled Groundwater Area designation, referenced in prior Department correspondence as Zone 3 or Subarea 3. Materials reviewed include the Petition for the East Valley Controlled Groundwater Area filed on August 25, 2014 and a supplemental statement regarding the temporary designation proposal filed on August 7, 2015. The temporary designation is proposed for a period not to exceed four years and would focus on areas generally surrounding the permanent controlled groundwater area proposal currently before the Department. The Petitioner has requested the temporary proposal in order to further investigate the characteristics of possible naturally-occurring arsenic detected in groundwater near the former East Helena Smelter site.

The Petitioner has requested that future groundwater developments within the temporary controlled groundwater area be subject to loosely defined controls. The proposed controls would include: 1) a 30-day notification to the Lewis and Clark County Health Department (LCC) prior to the drilling of a new well; 2) during drilling, LCC would have the opportunity to be present at the drill site for the purpose of analyzing well cuttings and associated geology; 3) each new development would be completed with a sampling port and stilling tube; and 4) access agreements would be established, allowing LCC or their designee to monitor water levels and water chemistry.

The location and boundaries of the proposed temporary controlled groundwater designation is proposed as follows. All lands described below are located on 1,366 acres in Lewis and Clark County, Montana. The proposed temporary controlled groundwater area would run 3 miles due north from the southwest corner of Section 35, T10N, R3W, to the northwest corner of Section 23, T10N, R3W; then due east for 1 mile to the northeast corner of Section 23, T10N, R3W; then due south for approximately 0.72 miles to the intersection of Wylie Drive with the eastern border of Section 23; then southeasterly along Wylie Drive for approximately 0.38 miles to its intersection with the northern border of Section 25, T10N, R3W; then due east along the northern border of Section 25 to its northeastern corner; then due south for approximately 0.5 miles to East Lewis Street, East Helena; then due east on East Lewis Street for approximately 0.16 miles to the intersection of East Lewis Street and Prickly Pear Avenue North; then due south down Prickly Pear Avenue North to its intersection with US Highway 12; then east down US Highway 12 for approximately 400 feet to its intersection with Secondary Highway 518; then south on Secondary Highway 518 for approximately 0.93 miles to its intersection with the southern boundary of

Section 31, T10N, R2W; then due west for approximately 2.15 miles to the southwest corner of Section 35, T10N, R3W (starting point).

The Department finds that a temporary controlled groundwater area designation is not justified. Pursuant to § 85-2-506, MCA, the Department lacks the authority to impose the Petitioner's proposed controls for the temporary designation. The proposed controls do not clearly establish a plan for the Department to monitor, measure, meter or control future water use within the temporary boundaries.

The Department is providing the Petitioner with a draft copy of administrative rules regarding the proposed permanent designation for Zones 1 and 2 (enclosed). The Petitioner has 15 days from the date of this letter to provide any comments.

If you have any questions or concerns, please contact me at 444-5783.

Sincerely,

Bryan Gartland
Deputy Regional Manger

Copy: Robert Anderson, Hydrometrics, Inc.

Gartland, Bryan

From: James Swierc <JSwierc@lccountymt.gov>
Sent: Friday, August 07, 2015 4:50 PM
To: Gartland, Bryan
Cc: Betsy Burns; CynthiaBrooks; Lauri Gorton (lg@g-etg.com); Bob Anderson; Kathy Moore
Subject: RE: CGWA
Attachments: East Valley Controlled Ground Water Area - criteria Aug2015.docx

Bryan

Attached are the criteria we're proposing for the Temporary Controlled Ground Water Area associated with the East Bench CGWA.
I'm unsure if we can require permits for wells in this area, but that seemed to be a way to ensure that we're notified, and it was also consistent with a permit process for the other parts of the CGWA.

Let me know if you have any questions, or need any more information

James

James Swierc, PG
Hydrogeologist
Lewis & Clark County
Water Quality Protection District
406-457-8585
jswierc@co.lewis-clark.mt.us

East Valley Controlled Ground Water Area (CGWA)

The temporary controlled ground water area (TCGWA) established as part of the larger East Valley CGWA requires several provision placed on the public for administration of the area. The temporary designation was established so that a more comprehensive study can be completed for the area. The goal of the study is to determine whether arsenic detected in wells represents naturally occurring background constituents in ground water. While the details have not been established at this time, the study will collect data to characterize ground water flow directions and gradients, and water quality types including major ions and trace metals. Since the arsenic is considered likely to be derived from natural sources, observation of the geology of the local aquifer by a qualified hydrogeologist during drilling will support development of a geologic model for the area that helps explain the natural source of arsenic to the ground water system.

Any new wells installed during the study period will be considered as potential additional monitoring points for the study, and will be designated as such during the study period. The study period will include the length of the TCGWA designation, which was proposed as 4 years with the original application. The following represent criterion for each new well in the TCGWA.

Notification: Lewis & Clark County (LCC), as administrators of the TCGWA, will be working with consultants to complete the ground water study. For this area, a 30 day notification period will be established for new wells, with a permit issued from the Lewis & Clark County Health Department as will be in effect for the other areas of the East Valley CGWA.

During drilling, LCC and/or their consultants may wish to be present during drilling to review and log the geology of the subsurface materials. The 30 day notification period allows for scheduling with drillers.

Monitoring Point Establishment: These criteria are necessary so that any new well can be included as a monitoring point for the ongoing study of the TCGWA. Each new well will be installed with a sampling port so that water samples can be collected prior to any treatment which may be established for the well. Stilling tubes will be required for each well so that water levels can be measured in the well. The cost of the stilling tube will be covered by LCC.

Access Agreement: The owner of the new well will provide access to LCC and/or their consultants for monitoring through the completion of the TCGWA designation study. The estimated monitoring schedule will include collecting water levels on a monthly basis, and collecting water quality samples on a quarterly basis. Note that the monitoring schedule may be modified from the estimated schedule, based on conditions encountered.

All data collected for the TCGWA designation study will be forwarded to the well owner within six months of sample collection.

RECEIVED
AUG 07 2015
DNRC-HRO

DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION
HELENA WATER RESOURCES REGIONAL OFFICE

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PHONE: (406) 444-6999
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HELENA, MT 59620-1601

July 23, 2015

Kathy Moore
Lewis and Clark City-County Health Department
316 North Park Avenue
Helena, MT 59623

Subject: Petition for Controlled Groundwater Area No. 30070516 411 (East Valley), by Lewis and Clark City-County Health Department

Dear Petitioner:

The Department of Natural Resources and Conservation (Department) has determined to proceed with the Petition for the East Valley Controlled Groundwater Area filed on August 25, 2014.

As detailed in the enclosed materials, the Department finds that a permanent controlled groundwater area designation is justified for subarea 1 and subarea 2. The Department also finds that the proposed temporary designation cannot proceed without additional information regarding what is needed for water measurement, water quality testing and reporting within the temporary controlled groundwater area boundaries (subarea 3).

Please note that the Petitioner must file a supplemental petition including additional information related to the request for a temporary designation no later than **August 7, 2015**. The Department will provide the Petitioner with a draft copy of administrative rules no later than August 28, 2015. The Petitioner will then have 15 days from the receipt of the draft rules to provide any comments.

If you have any questions or concerns, please contact me at 444-5783.

Sincerely,

Bryan Gartland
Deputy Regional Manger

Copy: Robert Anderson, Hydrometrics, Inc.

Enclosures

DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION
HELENA WATER RESOURCES REGIONAL OFFICE

STATE OF MONTANA

PHONE: (406) 444-6999
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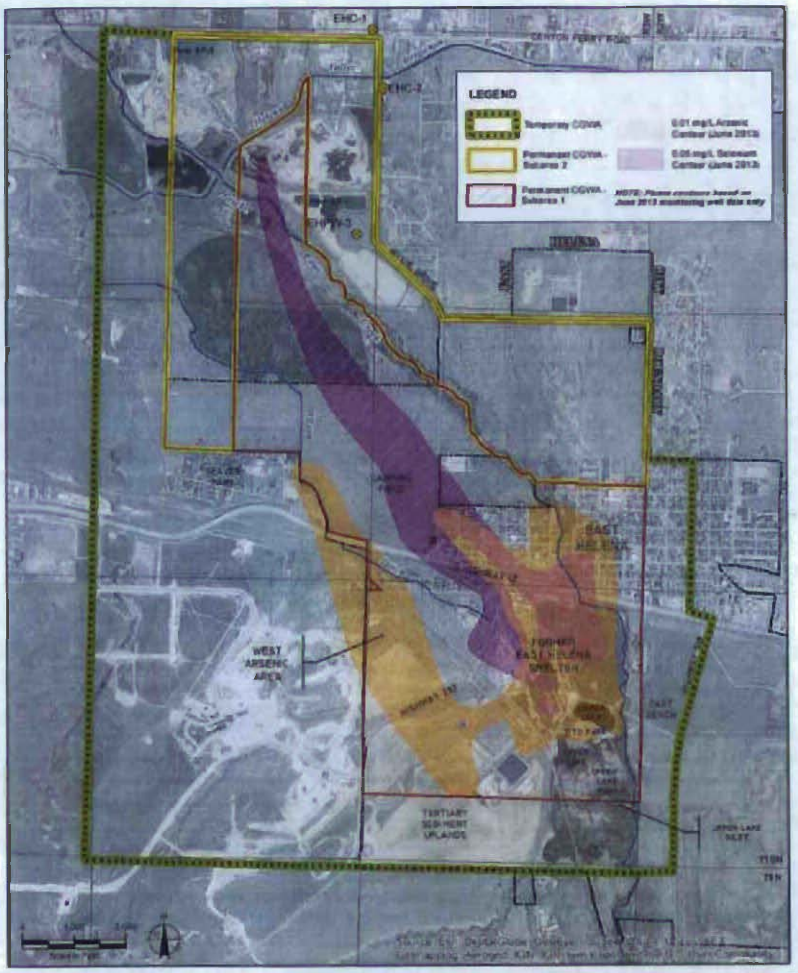
DETERMINATION TO PROCEED WITH PETITION FOR CONTROLLED GROUNDWATER AREA

On August 25, 2014, Lewis and Clark City-County Health Department (Petitioner) submitted Petition for Controlled Groundwater Area No. 411 30070516 to the Helena Water Resources Office of the Department of Natural Resources and Conservation (Department or DNRC) for the designation of an East Valley Controlled Groundwater Area (EVCGWA).

The Petitioner proposes to establish the EVCGWA near and partially within the City of East Helena, Lewis and Clark County, Montana due to water quality concerns. The Helena Valley alluvial aquifer in that vicinity has been contaminated by the former East Helena lead smelter and apparent natural or background sources. The objective of the EVCGWA designation is to restrict future groundwater withdrawals and use in order to prevent exposure to certain contaminants that could result in unacceptable risk to human health or the environment, and to prevent possible pumping-induced spreading of groundwater contaminants.

The Department published receipt of the Petition on its website. The Petition was determined to be correct and complete as of February 23, 2015. On April 24, 2015, the Department informed the Petitioner that it would proceed under § 85-2-506(4)(a)(ii), which allows the Department to study the information presented in the Petition for a period not to exceed 90 days before denying or proceeding with the Petition.



Hydrometrics, Inc. Date Saved: 6/2/2014 9:51:11 AM	PETITION FOR EAST VALLEY CONTROLLED GROUNDWATER AREA	SITE FEATURES NEAR THE PROPOSED EAST VALLEY CONTROLLED GROUNDWATER AREA	FIGURE 1-1

Department Hydrogeologist Russell Levens was assigned by the Department to review the information provided in the Petition and issued a memorandum of his findings and opinions. See attached Department memorandum from Russell Levens to Bryan Gartland dated June 15, 2015. Mr. Levens was of the opinion that the information provided by the Petitioner demonstrates that arsenic and selenium in groundwater consistently exceeds human health standards within subarea 1, elevated levels of arsenic are present west of the ASARCO smelter site, and new wells or changes in aquifer recharge can spread contaminants into subarea 2.

I. FINDINGS REGARDING PERMANENT CONTROLLED GROUNDWATER AREA

The boundaries of subarea 1 and subarea 2 were determined using numerical groundwater flow modeling. The modeling indicates that more likely than not: future increases or decreases in Prickly Pear Creek flows and leakage will affect contaminant migration; past leakage from Wilson Ditch limited westward migration of contaminants; future changes in the drain system in gravel pits will affect contaminant migration; and, groundwater flow from the west and southwest of the former smelter limits westward contamination migration (EVCGWA Petition, pp 4-6 to 4-8; Levens 6/15/2015 Memorandum, pp 2-4). Based upon the modeling contained in the Petition and Levens' memorandum, the Department finds that a preponderance of the evidence establishes that current and projected groundwater withdrawals from the aquifer in the proposed EVCGWA have induced or altered contaminant migration exceeding relevant water quality standards in subarea 1 and will induce or alter contaminant migration exceeding relevant water quality standards in subarea 2 of the proposed EVCGWA without the controls proposed in the Petition. §85-2-506(5)(c), MCA.

The Petition includes groundwater monitoring results that document exceedances of human health standards established in Circular DEQ-7 (MDEQ, 2012) for arsenic and selenium (EVCGWA Petition, pp 1-2, 3-1 to 3-2, Appendix D). Mr. Levens' analysis supported the Petitioner's assertion that human health standards were exceeded in regards to the arsenic and selenium levels found within the proposed controlled groundwater area boundaries (Levens 6/15/2015 Memorandum, p 4). Based upon the monitoring results contained in the Petition, DEQ's health standards, and Levens' memorandum, the Department finds that a preponderance of the evidence establishes that groundwater within the subarea 1 of the proposed EVCGWA is not suited for beneficial use. §85-2-506(5)(e), MCA.

Groundwater sampling presented in the Petition provides information regarding the public health risk in areas and depths where concentrations of arsenic and selenium exceed human health standards. The health risks identified in the Petition include exposure to arsenic in excess of 10 micrograms per liter and selenium in excess of 50 micrograms per liter (EVCGWA Petition, p 1-2). Based upon the groundwater sampling results contained in the Petition (EVGWA Petition,

Appendix D; Levens 6/15/2015 Memorandum, pp 2-4), the Department finds that a preponderance of the evidence establishes that public health, safety, or welfare is or will become at risk in subarea 1 and subarea 2 of the proposed EVCGWA. §85-2-506(5)(f), MCA.

The Department determines that it will proceed with the Petition for a permanent controlled groundwater area and initiate rulemaking proceedings for subarea 1 and subarea 2 of the proposed EVCGWA.

2. FINDINGS REGARDING TEMPORARY CONTROLLED GROUNDWATER AREA

The Petition also requested a temporary controlled groundwater area be established in subarea 3 of the proposed EVCGWA. The Department may designate by rule a temporary controlled ground water area for a specific amount of time not to exceed 6 years to conduct studies necessary to determine whether a permanent controlled groundwater area is needed. 85-2-506(6), MCA.

While the modeling and information provided by the Petitioner demonstrates a need for additional facts, the Petition does not include sufficient information to determine the scope or duration of time required to conduct a study and obtain additional facts. Furthermore, while the Petition indicates that "access" is needed in order to monitor and measure groundwater appropriations and their chemical compositions, the Department is unable to determine what type of access is needed, whether it is needed on all new wells or replacement wells, or whether it is needed on existing wells.

The Department determines that it cannot proceed with the portion of the Petition for the temporary controlled groundwater area without additional information regarding what is needed for water measurement, water quality testing, and reporting.

The Petitioner may provide the Department with a Supplemental Petition including additional information related to the request for a temporary controlled groundwater area for subarea 3. The Supplemental Petition must be received by the Department no later than August 7, 2015 in

order for the Department to determine whether to initiate rulemaking for the proposed temporary controlled groundwater area.

3. RULEMAKING TIMELINE

The Department will provide the petitioners with a draft copy of the rule no later than August 28, 2015. The Petitioner has 15 days from receipt of the draft rules to provide any comments. The Department will then finalize the rules and proceed with formal rulemaking proceedings in accordance with Title 2, Chapter 4, part 3, MCA. Any comments provided on the draft rule does not preclude the petitioner from submitting comments during the comment period provided for in the formal proceedings.

Please contact the Helena Regional Office if you have any questions.

DATED this 23rd day of July, 2015.

Bryan Gartland, Deputy Manager
Helena Regional Office
Department of Natural Resources and Conservation

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

STEVE BULLOCK
GOVERNOR

DIRECTOR'S OFFICE (406) 444-2074
TELEFAX NUMBER (406) 444-2684

STATE OF MONTANA

WATER RESOURCES DIVISION (406) 444-6601
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PO BOX 201601
HELENA, MONTANA 59620-1601

To: Brian Gartland, Unit Manager
Helena Water Resource Office

From: Russell Levens, Groundwater Hydrologist
Water Management Bureau

Date: June 15, 2015

RE: Proposed East Valley Controlled Ground Water Area

Introduction

The purpose of this report is to review a petition requesting that the Department of Natural Resources and Conservation (DNRC) establish a Controlled Ground Water Area (CGWA) in the vicinity of the former ASARCO lead smelter in East Helena. The proposed East Valley CGWA is submitted jointly by the Lewis and Clark City-County Board of Health and the Lewis and Clark County Water Quality Protection District and encompasses the former smelter site, portions of the town of East Helena, and surrounding agricultural, industrial and residential lands. The joint petitioners ask the DNRC to place controls on future water withdrawals in the proposed CGWA to protect public health by preventing exposure to contaminated water and by preventing alteration of contaminant plumes originating from the former smelter site and other potential sources.

Background

The ASARCO smelter site covers approximately 142 acres immediately south of East Helena in the northeast quarter of Section 36, Township 10 North, Range 3 West. The smelter processed lead and zinc from 1888 through 2001 resulting in contamination of soils, surface water and groundwater that motivated listing as a Federal Superfund site in 1984. The Environmental Protection Agency (EPA) initiated cleanup in 1998 and manages the site under their RCRA Corrective Action Program.

The Montana Environmental Custodial Trust (Custodial Trust) assumed responsibility for cleanup of the site as a result of the ASARCO bankruptcy settlement. The Custodial Trust is preparing a Corrective Measures Study (CMS) pursuant to a Consent Decree with EPA to identify and evaluate remedies including site cleanup and control of contaminated groundwater. The proposed CGWA is an institutional control intended to restrict human exposure in the interim prior to final remediation of the ASARCO Superfund site. The Custodial Trust also is implementing Interim Measures to reduce contamination release and migration while final remedies are evaluated and implemented.

The joint petitioners assert that:

- Current or projected ground water withdrawals from the aquifer or aquifers in the proposed controlled ground water area have induced or altered or will induce or alter contaminant migration exceeding relevant water quality standards
- Ground water within the proposed controlled ground water area is not suited for beneficial use
- Public health, safety, or welfare is or will become at risk

Proposed CGWA Boundaries

The joint petitioners delineate both permanent and temporary subareas within the overall CGWA boundary based on the current extent that contaminants exceed applicable human health standards plus a buffer that allows for uncertainty and contaminant spreading. The area proposed for permanent CGWA designation is divided into two regions defined according to both lateral extent and depth. Permanent subarea 1 includes regions where monitoring indicates that concentrations of arsenic and selenium consistently exceed human health standards. Subarea 1 extends to a depth of 200 feet beneath the smelter property north to approximately the northern boundaries of Section 26, T10N, R3W. The depth increases to 300 feet below ground surface north of Section 26 where the confining unit is discontinuous or absent. Permanent subarea 2 includes regions where there is a potential for contamination; however, monitoring data are insufficient to document contamination or new wells or interim source reduction methods may alter the extent of contamination. Restrictions proposed for subarea 2 are not limited by depth and are proposed in subarea 1 below 200 feet (300 feet north of Section 26).

The area proposed for temporary CGWA designation includes areas to the south and west of the former ASARCO smelter where monitoring indicates elevated arsenic concentrations that petitioners believe to be from a separate naturally occurring source. The purpose of the temporary designation is to allow for ongoing and additional investigations to characterize the extent of contamination and to distinguish between natural sources and the former ASARCO smelter source. The petition proposes a 4-year study period in which they will review existing information and pursue a grant from the Resource Recovery Grant Program to fund collection of additional data on the extent of contamination and soil and aquifer properties in the area proposed for temporary CGWA designation.

Evaluation of Evidence

The objective of this review is to evaluate the adequacy of evidence submitted with the petition and the petitioner's justification for the proposed CGWA relative to criteria for establishing a CGWA in 85-2-506 MCA.

A. Current or projected ground water withdrawals from the aquifer or aquifers in the proposed controlled ground water area have induced or altered or will induce or alter contaminant migration exceeding relevant water quality standards.

The geologic description and understanding of recharge and groundwater flow presented in the petition provides a useful framework for understanding the distribution of contaminants and the potential for their transport in the future. The character of sediments of the Helena valley-fill aquifer within the proposed CGWA is based on examination of

drill cuttings from piezometers, soil borings, and 200 monitoring wells in addition to driller's logs of existing wells. The petition separates subsurface materials into an upper aquifer, a Tertiary-age volcanic ash confining unit underlying the upper aquifer, and a deeper groundwater system. The upper aquifer is coarse grained with discontinuous lenses of silt that range from 20 to 80 feet thick from south to north. The underlying confining unit consists of low-permeability clay that extends beneath the smelter north to approximately the northern boundaries of Sections 26, T10N, R3W where it pinches out. The confining layer is believed to inhibit downward percolation of contaminants where it is present and continuous. The deeper groundwater system is described in the petition as multiple coarser-grained layers that are beneath and interspersed within the clay confining unit, becoming vertically continuous with the upper aquifer north of Section 26.

To investigate aquifer recharge, the petition includes information on water levels in the 200 monitoring wells, leakage from Prickly Pear Creek and irrigation ditches, the influence of gravel pit ponds, and a drawdown test of Upper Lake southwest of the smelter site. This information provides a credible basis to understand how future changes might affect aquifer recharge and contaminant migration. The principal findings that are considered in developing the proposed CGWA boundaries include:

- Potential future increases or decreases in Prickly Pear Creek flows and leakage could affect contaminant migration
- Past leakage from Wilson Ditch limited westward migration of contaminants
- Future changes in the drain system in gravel pits could affect contaminant migration
- Groundwater flow from the west and southwest of the former smelter limits westward contaminant migration
- Dewatering of Upper Lake and lowering of Prickly Pear Creek adjacent to the smelter site will lower groundwater levels and reduce leaching of contaminants

Numerical groundwater flow modeling is used in the petition to examine the effect of uncertainty and changing conditions on transport of contaminants in order to delineate the horizontal and vertical boundaries of the proposed CGWA. Uncertainties include the vertical extent of selenium beyond the northern extent of the volcanic ash confining layer, the potential effects of turning off Wilson Ditch and realigning Prickly Pear Creek, and the effects of potential new pumping wells. Modeling is limited to advective transport of contaminants with ambient groundwater flow and does not consider attenuation mechanisms that may dramatically affect transport of many contaminants. This approach provides a conservative evaluation that may over-estimate transport and risk of exposure with respect to arsenic; however, limiting modeling of advective transport of selenium, which is more mobile in groundwater, is appropriate.

Overall, conclusions drawn from information on aquifer characteristics, aquifer recharge and groundwater modeling provide a sound basis for delineating the proposed CGWA and its subareas while allowing for uncertainty and foreseeable future conditions.

B. Ground water within the proposed controlled ground water area is not suited for beneficial use.

The petition provides detailed groundwater monitoring results that document exceedances of human health standards established in Circular DEQ-7 (MDEQ, 2012) for arsenic (10µg/L) and selenium (50 µg/L). The concentrations of these primary contaminants of concern found on the smelter site, and the current extent of the migration and exceedance of health standards are characterized by chemical analysis of water samples collected from the 200 monitoring wells. The two contaminants form distinct plumes that extend north from the former smelter site and reflect their different migration behavior in groundwater. A separate area of elevated arsenic concentrations west of the distinct plumes also is delineated by sampling. Evidence of the prevailing groundwater flow direction based on measured groundwater elevations and results of numerical modeling indicate the source of elevated concentrations of arsenic west of the smelter occur naturally or are from a separate source.

Monitoring data included in the petition provides detailed credible evidence of the suitability of groundwater for human consumption within the proposed CGWA.

C. Public health, safety, or welfare is or will become at risk.

Groundwater sampling presented in the petition provides a detailed understanding of public health risk in areas and depths where concentrations of arsenic and selenium exceed human health standards. Numerical modeling of the source of arsenic west of the smelter property and transport of selenium with depth provides further understanding of public health risk. This information provides detailed credible evidence of the risk to public health within the proposed CGWA.

Summary

The petition provides chemical analyses of groundwater demonstrating that concentrations of arsenic and selenium in groundwater consistently exceed human health standards within subarea 1 of the proposed CGWA. The results of groundwater sampling also demonstrate elevated arsenic levels west of the ASARCO smelter site, whether associated with natural background, the smelter property, or another contaminant source. Furthermore, the petition includes detailed information on aquifer characteristics, sources of groundwater recharge, and projections of the influence of potential changing conditions on contaminant migration. Numerical modeling of groundwater flow and advective transport of contaminants demonstrates that new wells or changes in aquifer recharge resulting from interim measures can spread contaminants into subarea 2 of the proposed CGWA. Accordingly, lateral and vertical boundaries of the proposed permanent CGWA are delineated to account for the potential that contaminant plumes may shift in response to independent interim source reduction measures or pumping by new wells. Overall, the information provided in the petition is detailed and credible and forms a reasonable basis from which to evaluate the need for restrictions in a permanent CGWA and a plan for investigating designation of the proposed temporary CGWA.

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

STEVE BULLOCK
GOVERNOR

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HELENA, MONTANA 59620-1601

To: Brian Gartland, Unit Manager
Helena Water Resource Office

From: Russell Levens, Groundwater Hydrologist
Water Management Bureau

Date: February 23, 2015

RE: Proposed East Valley Controlled Ground-Water Area

Introduction

The purpose of this memorandum is to review the scientific evidence supporting a petition submitted jointly by the Lewis and Clark City-County Board of Health and the Lewis and Clark County Water Quality Protection District requesting the DNRC establish a Controlled Ground Water Area (CGWA) in the vicinity of the former ASARCO lead smelter in East Helena. The proposed East Valley CGWA includes 3,290 acres encompassing the former smelter site, portions of the City of East Helena and surrounding agricultural, industrial and residential lands. The following review summarizes the information provided to address criteria for designation of a CGWA and the petitioner's proposal boundaries and restrictions within permanent and temporary CGWAs.

Evaluation of Criteria

A. Current or projected ground water withdrawals from the aquifer or aquifers in the proposed controlled ground water area have induced or altered or will induce or alter contaminant migration exceeding relevant water quality standards.

The proposed East Valley CGWA would apply to the Helena valley-fill aquifer that consists of unconsolidated Quaternary-age alluvium overlying semi-consolidated Tertiary-age sediments and is the primary drinking water source for the Helena Valley outside of Helena. The valley-fill aquifer within the proposed CGWA is characterized by drill cuttings in 200 monitoring wells, piezometers, and soil borings, and driller's logs of existing wells. Water levels in wells and leakage from Prickly Pear Creek and irrigation ditches characterize the source of recharge to the aquifer and the pattern of groundwater flow, and help explain the observed and potential future pattern of groundwater contamination.

The petition presents the results of a numerical groundwater model to delineate capture zones which indicate the lateral distance that contaminated groundwater could be pulled

by both small wells pumping less than 35 gallons per minute (gpm) and large wells pumping up to 350 gpm. Capture zone delineations have been used to delineate other CGWAs including the Bitterroot Landfill and Idaho Pole sites and provides a reasonable setback distance for preventing the spreading of contamination by new pumping.

B. Ground water within the proposed controlled groundwater area is not suited for beneficial use.

The extent of contamination and limitations of beneficial use in the proposed CGWA is documented by groundwater monitoring under the Resource Conservation and Recovery Act (RCRA) Corrective Action Program. The petition includes groundwater monitoring results that document exceedances of human health standards established in Circular DEQ-7 (MDEQ, 2012) for arsenic (10µg/L) and selenium (50 µg/L), the contaminants of concern for the ASARCO smelter site. The two contaminants form distinct plumes extending north from the former smelter site reflecting their different migration behavior in groundwater. Transport of arsenic is attenuated relative to selenium because it is readily adsorbed to clays in the subsurface. In contrast, selenium forms soluble complexes that migrate more freely with ambient groundwater flow.

C. Public health, safety, or welfare is or will become at risk.

Inadvertent spreading of contaminants by wells or as a result of interim measures and/or uptake of contaminated water by new wells both may impact public health, safety, or welfare. Capture zones delineated to identify setback distances to prevent contaminant spreading also protect against health effects caused by uptake of contaminated water by new wells.

Permanent CGWA

Lateral and vertical boundaries of the proposed permanent CGWA are delineated to account for uncertainty in the current extent of contaminant plumes, the potential that contaminant plumes may shift in response to independent interim source reduction measures or pumping by new wells, and the potential that use restrictions will impact property owners. The proposed permanent CGWA is divided into two regions defined according to both lateral extent and depth. Subarea 1 includes regions where monitoring indicates that concentrations of arsenic and selenium exceed human health standards. Subarea 2 includes regions where monitoring data are insufficient or where new wells or interim source reduction methods may change the extent of contamination.

Temporary CGWA

The petition proposes a temporary CGWA to include areas to the south and west of the former ASARCO smelter where monitoring indicates elevated arsenic concentrations that petitioners believe to be from a separate naturally occurring source. The purpose of the temporary designation is to allow for ongoing and additional investigations to characterize the extent of contamination and to distinguish between natural sources and the former ASARCO smelter source.

The petition proposes a 4-year study period in which they will review existing information and pursue a grant from the Resource Recovery Grant Program to fund collection of additional data on the extent of contamination and soil and aquifer properties.

Discussion

The joint petitioners ask the DNRC to restrict groundwater usage in order to prevent alteration of arsenic and/or selenium migration from the former smelter site and other potential sources, and to protect public health by preventing exposure to contaminated water. The proposed permanent CGWA is an institutional control and interim measure that is part of an overall remedy being considered that includes source controls and engineering remedies. In addition to the proposed permanent CGWA, the petitioners propose a temporary CGWA to provide a mechanism to investigate potential sources of elevated arsenic concentrations primarily southwest of the ASARCO properties including the Sevier Park residential subdivision. The petitioners propose to analyze existing data and pursue grants to fund additional investigations in order to delineate the source of contaminants within the proposed temporary CGWA and to determine whether permanent CGWA designation should be extended to the south and west. The information provided in the petition provides a reasonable basis from which to evaluate the need for and potential restrictions in a permanent CGWA, and a reasonable plan for investigating the extent and source of contamination and need for future permanent designation in the temporary CGWA.

DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION
HELENA WATER RESOURCES REGIONAL OFFICE

STATE OF MONTANA

PHONE: (406) 444-6999
TELEFAX NUMBER: (406) 444-9317

1424 9TH AVENUE
PO BOX 201601
HELENA, MT 59620-1601

April 24, 2015

Kathy Moore
Lewis and Clark City-County Health Department
316 North Park Avenue
Helena, MT 59623

Subject: Petition for Controlled Groundwater Area No. 30070516 41I (East Valley), by Lewis and Clark City-County Health Department

Dear Petitioner:

Following the Correct and Complete determination made February 23, 2015, the Department of Natural Resources and Conservation (Department) will proceed under § 82-2-506(4)(a)(ii), MCA:

(4) (a) Within 60 days after a petition is determined to be correct and complete, the department shall:
(i) deny in writing the petition in whole or in part, stating the reasons for denial;
(ii) inform the petitioner that the department will study the information presented in the petition for a period not to exceed 90 days before denying or proceeding with the petition; or
(iii) initiate rulemaking proceedings in accordance with Title 2, chapter 4, part 3.

The 2015 Legislative Session has consumed much of the Department's resources. The pending closure of the session will allow the Department to better coordinate the administrative rule making process with the Secretary of State's office. Please note that the deadline established by the afore-mentioned statute is July 23, 2015.

If you have any questions or concerns, please contact me at 444-5783.

Sincerely,

Bryan Gartland
Deputy Regional Manger

Copy: Jim Wilbur, Lewis and Clark County Water Quality Protection District
Robert Anderson, Hydrometrics, Inc.

DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION
HELENA WATER RESOURCES REGIONAL OFFICE

STATE OF MONTANA

PHONE: (406) 444-6999
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1424 9TH AVENUE
PO BOX 201601
HELENA, MT 59620-1601

February 23, 2015

Kathy Moore
Lewis and Clark City-County Health Department
316 North Park Avenue
Helena, MT 59623

Subject: Petition for Controlled Groundwater Area No. 30070516 41I (East Valley), by Lewis and Clark City-County Health Department

Dear Petitioner:

The Department of Natural Resources and Conservation (Department) has determined that your controlled groundwater area petition is correct and complete. Please remember that **correct and complete DOES NOT mean that your petition will be granted.** Correct and complete simply means that the Department has enough credible information to be able to begin analyzing your controlled groundwater area petition.

The Department will proceed under § 82-2-506, MCA, and notify the Petitioner on its progress.

Please remember that this letter does not indicate that your controlled groundwater area petition will be authorized. The purpose of this letter is to indicate that the Department has enough credible information to analyze your petition.

If you have any questions or concerns, please contact me at 444-5783.

Sincerely,

Bryan Gartland
Deputy Regional Manger

Copy: Jim Wilbur, Lewis and Clark County Water Quality Protection District
Robert Anderson, Hydrometrics, Inc.